

REMARKS

The foregoing amendment to the specification is intended to place the application in condition for allowance. Specifically, the specification has been amended to incorporate missing reference identification information. In view of the amendment and the following reasons for allowance, the applicants hereby respectfully request further examination and reconsideration of the subject application.

The Section 102(b) Rejections of Claims 1-2, 4 and 16-19

Claims 1-2, 4 and 16-19 were rejected under 35 USC 102(a) as being anticipated by Etoh, U.S. Patent No. 6,081,551. The Office Action asserts that Etoh discloses each and every element of the rejected claims. The applicants hereby respectfully disagree with this contention.

The applicants claim a system and process that encodes segmented panoramic video frames, thereby allowing selective decoding of just those specific regions that are to be viewed. Specifically, each frame is segmented into a plurality of regions. The frames are segmented in the same way such that the segmented regions correspond from one frame to the next. Each segmented region is then encoded separately. As part of this encoding, **each frame segment is appended with an indicator that identifies what frame and what “location” (i.e., what region of the panoramic frame) the accompanying image data relates to.** In addition, a separate file can be created for each video stream corresponding to a certain frame segment region. Alternately, one file could be created for all segment regions, with separate frames and frame segments being identified by the aforementioned identifiers. (page 4, lines 4-10; page 10, line 31-page 11, line 15).

The cited reference, on the other hand, does not teach many of these elements. First, it is pointed out that Etoh describes a system for compressing and

decompressing images, but not panoramic video. Granted in the third described embodiment of Etoh, a panoramic image is used as a reference image in the compression and decompression of a series of non-panoramic images (which the reference calls "ordinary frames"). Thus, Etoh is directed toward the encoding and decoding of non-panoramic images. This is important as the differences between the Etoh system and the claimed invention stem from the fact that Etoh is not involved with encoding the frames of a panoramic video.

More particularly, Etoh teaches the use of a panoramic template that is employed in the encoding of a series of the aforementioned ordinary frames. The process taught in Etoh involves encoding and transmitting three separate data streams-namely one stream for the ordinary frames, one stream for the panoramic template and finally one stream for a sequence of panoramic template sub-images. It appears the sub-images are selectively decoded in advance and used as reference images to decode a particular portion of the panoramic template that is needed in turn to decode a particular one of the ordinary frames. To facilitate this decoding scenario, position information is appended to each encoded ordinary frame to indicate the location of a sub-region of the panoramic template that corresponds to the ordinary frame. This information is used by the decoder to ascertain what part of the panoramic template needs to be decoded in order to decode a particular ordinary frame. In addition, position information is appended to the panoramic template that indicates which of the aforementioned template sub-images corresponds to a particular location in the template. This allows the decoder to employ the correct, pre-decoded template sub-image in the decoding of the portion of the panoramic template needed to then decode the desired ordinary image. This is shown by the passage in Etoh at Col. 12, lines 42-51 stating:

"To implement this, information indicating the upper left position and lower right position of a macroblock containing a template sub-region to be referenced (see FIG. 14) is **appended, for example, at the**

head of each ordinary frame packet. Likewise, information indicating the upper left position and lower right position of the macroblock that a transmitted sub-image occupies in the entire image is **appended to each template packet so that the sub-image necessary for the decoding of the template can be decoded in advance.** (*emphasis added*).

The Examiner is apparently equating the panoramic template taught in Etoh with a panoramic frame of the claimed invention. This being the case, the claimed indicator that is appended to each of the frame regions segmented from the panoramic frame being encoded and which identifies the frame it comes from and its position in that frame, are not the same as the position information that Etoh teaches. Specifically, the only element taught in Etoh that can be equated with the segmented panoramic frame regions claimed by the applicant would be the aforementioned template sub-images. The ordinary frames cannot be so equated because they are not segmented from the panoramic template, but instead are used to create the template. While this is not specifically mentioned in the description of the third embodiment of Etoh, it is the only reasonable interpretation. This is because, it is stated in Etoh that :

"This embodiment is an extension of the foregoing second embodiment" (Col. 12, lines 30-31).

This second embodiment teaches the creation of template images by copying certain ones of the ordinary frames being encoded. Thus, by extension the ordinary frames must also be used to create the panoramic template of the third embodiment, which makes sense as it is used as a reference to decode these frames.

Accordingly, the position information that Etoh teaches is appended to the encoded ordinary frame data is not the claimed indicator as these ordinary frames

cannot be equated with the claimed segmented panoramic frame regions. In addition, while Etoh's panoramic template sub-images do appear to equate with the claimed regions, there is no location information appended to them as would be necessary to correspond to the applicant's claimed indicator. Rather, Etoh teaches that the location information is instead appended to the encoded template data. Clearly this is not the claimed invention.

It is further pointed out that there is absolutely no teaching in Etoh that the panoramic template sub-images need to correspond in position to sub-images from a subsequent panoramic template. However, this is a claimed requirement of the applicant's system and process. In particular it is claimed that each frame of the panoramic video is segmented into plural corresponding regions.

A prima facie case of anticipation is established only when the Examiner can show that the cited reference teaches each of the claimed elements of a rejected claim. In this case, the Examiner cannot show that Etoh teaches the claimed features whereby **each frame region is appended with an indicator that identifies its corresponding panoramic video frame and its location within that frame**, and whereby each frame of the panoramic video is **segmented into plural corresponding regions**. Thus, the rejected claims recite features that are not taught in cited art, and as such a prima facie case of anticipation cannot be established. It is, therefore, respectfully requested that the rejection of Claims 1-2, 4 and 16-19 be reconsidered based on the novel claim language (as exemplified in Claim 1):

"A process of encoding frames of a panoramic video...comprising... segmenting each frame of the panoramic video into plural corresponding regions; and separately encoding each region of the panoramic video frames, wherein encoding the frame regions of the panoramic video comprises...an indicator appended to the data of

each frame region that identifies its corresponding panoramic video frame and its location within that frame."

The Section 103(a) Rejection of Claims 3, 5, 7-15, 20-21 and 23-30

Claims 3, 5, 7-15, 20-21 and 23-30 were rejected under 35 USC 103(a) as being unpatentable over Etoh in view of Furlan et al., U.S. Patent No. 6,337,708 (hereinafter Furlan). It is contended in the Office Action that Etoh teaches all the elements of rejected claims with the exception of decoding only user selected portions of the frames. However, it is further contended that the missing element is taught in Furlan. Thus, it was concluded that it would have been obvious to incorporate the teachings of Furlan into Etoh to produce the applicants' claimed invention. The applicants respectfully disagree with this contention of obviousness.

As discussed above, the applicants claim that **each frame region is appended with an indicator that identifies its corresponding panoramic video frame and its location within that frame**, whereas Etoh lack such a teaching. It is the applicants' position that Furlan also does not teach this advantageous appended indicator element. Therefore, the combination of the teachings of Etoh and Furlan do not make the rejected claims obvious.


In order to deem the applicant's claimed invention unpatentable under 35 USC 103, a prima facie showing of obviousness must be made. To make a prima facie showing of obviousness, all of the claimed elements of an applicant's invention must be considered, especially when they are missing from the prior art. If a claimed element is not taught in the prior art and has advantages not appreciated by the prior art, then no prima facie case of obviousness exists. The Federal Circuit court has stated that it was error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein (*In Re Fine*, 837 F.2d 107, 5 USPQ2d 1596 (Fed. Cir. 1988)).

In this case, the combination of Etoh and Furlan fails to teach the applicant's claimed feature whereby **each frame region is appended with an indicator that identifies its corresponding panoramic video frame and its location within that frame**. This claimed feature has the advantage of allowing a decoder to identify the specific regions it needs without having to decode the whole panoramic image. Thus, the applicants have claimed an element not taught in the cited combination, and which have advantages not recognized therein. Accordingly, no prima facie case of obviousness has been established in accordance with the holding of *In Re Fine*. This lack of prima facie showing of obviousness means that the rejected claims are patentable under 35 USC 103 over Etoh in view of Furlan. As such, it is respectfully requested that the rejection of Claims 3, 5, 7-15, 20-21 and 23-30 be reconsidered based on the previously-quoted claim language.

Summary

In summary, it is believed that Claims 1-5, 7-21 and 23-30 are in condition for allowance. Accordingly, reconsideration of the rejection of these claims is respectfully requested. In addition, allowance of these claims at an early date is courteously solicited.

Respectfully submitted,


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